REMARKS

The present communication responds to the Office Action dated April 9, 2003. In that Office Action, the examiner objected to the drawings, abstract, and specification. The Examiner rejected claims 1-14 under 35 U.S.C. §112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which the applicant regards as the invention. The Examiner objected to the drawings as failing to show the relationship of the first, second, and third membrane layers and objected to the abstract as being contradictory concerning the membrane layers in number. The Examiner rejected claims 1-12 under 35 U.S.C. §102(b) as being anticipated by Maser (U.S. Patent No. 4,857,683), claims 1, 13 and 14 under 35 U.S.C. 102(b) as being anticipated by O'Rourke (U.S. Patent No. 4,795,861), and claims 13 and 14 under 35 U.S.C. 103(a) as being unpatentable over Maser (U.S. Patent No. 4,857,683) considered with Larson et al. (U.S. Patent No. unknown).

Claims 1-14 are currently pending in the application. Claim 1 was amended to incorporate the limitations of claim 10 while claim 10 was canceled. Claims 2-9, 11 and 12 are as originally presented. Claim 13 was canceled with claim 27 being added as an independent claim incorporating each of the limitations of claim 13. New claims 28-41 were added depending from claim 13. Claim 14 was amended to depend from claim 27. Claims 15-26 were canceled in response to an election requirement.

The Examiner objected to the drawings as failing to show the relationship of the first, second, and third membrane layers. Figures 1b and 2b have been provided showing the relationship of the first, second, and third membrane layers. It is believed that no new matter is added in the figures as the figures merely repeat the first adhesive

coating 16 as a second adhesive coating 16b, the second membrane layer 12 as a third membrane layer 12b, the second membrane circuit traces 18 as third membrane circuit traces 18b, and the thru-hole 20 between the first and second membrane layers as a thru-hole 20b between the second and third membrane layers as is described at page 6, lines 9-13 as appropriate for providing a membrane switch circuit layout having more than three membrane layers.

The applicant asserts that the Examiner's objections to the specification have been addressed in the amendments to the specification outlined above. The Examiner objected to the abstract as being contradictory concerning the membrane layers in number. Specifically, the Examiner indicated that the abstract description applies only to a three-layer membrane switch device with the middle layer constituting a spacer with through holes but that the applicant's switching device consists of at least three layers since the conductive traces on each of the uppermost and lowermost membrane layers engage one another to complete a circuit and through holes are structurally provided in the membrane. The Examiner asserts that the applicant does not provide for a description of the two-layer membrane switch circuitry. It appears that the Examiner is confused. While the abstract discloses that "the membrane switch circuit layout may have two or more membrane layers" where "a conductive circuit trace is printed on the top surface of each membrane," it goes on to specifically explain a membrane switch circuit layout having two membrane layers. Specifically, the abstract reads:

> Thus, for example, in a layout having two membrane layers, the first membrane is positioned beneath the second membrane and the second membrane has thru-holes cut there through. Conductive ink may be pressed through the thru-

holes to provide electrical connection between the circuit traces printed on the membrane layers.

The applicant does not see how the language of the specific example could be interpreted as describing a switching device consisting of at least three layers (presumably, membrane layers). As stated in the example, the example layout has two membrane layers, the first membrane layer positioned between the second membrane layers. No further layers are described in the example. As the example explicitly explains a two-layer membrane switch circuit layout by means of example, the abstract has not been amended.

The Examiner further objects to the specification under 35 U.S.C. 112, first paragraph as being replete with terms which are not clear, concise, and exact in describing the multiple layer membrane switch circuit layout and in particular when three membrane layers are used. Specifically, the Examiner states that the description on page 6 at lines 9-13 is insufficient in describing the multiple layer membrane switch circuit layout. It is unclear as to what, in particular, the Examiner is objecting. Because the Examiner specifically refers to page 6 at lines 9-13 and the description of three membrane layers in accordance with the present invention as being inadequate, the applicant has revised this section. The applicant asserts that no new matter is added insofar as the description of the manufacture of a two-membrane layer switch circuit layout provided at page 5, line 25 through page 6, line 6 is merely repeated with an added third membrane layer, specifically repeating the description of the adhesive positioned between the first and second membrane layers, the membrane circuit trace printed on the second membrane layer and the thru-holes in the second membrane

layer and clarifying that, with a third membrane layer, an adhesive is positioned between the second and third membrane layers, a membrane circuit trace is printed on the third membrane layer and thru-holes are provided in the third membrane layer. This is thought only to specifically recite the details of the statement already provided at page 6, lines 9-13 and should be obvious to one skilled in the art from that already described at that section. The applicant notes that this section is only 4 lines of a ten page application and, given the Examiner's statement that the specification is "replete with terms which are not clear, concise, and exact," the applicant respectfully requests that the Examiner make particular reference to any other section of the application about which he may be confused.

Claims 1-14 were rejected under 35 U.S.C. §112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which the applicant regards as the invention. Specifically, the Examiner asserts that claims 1-14 do not clearly describe an operative membrane switch device. The Examiner states that it is not clear if the applicant intends to claim (1) static structure such as printed circuit paths on multiple layers or (2) structure, which is capable of interacting such as flexible membrane layers of a membrane switch, and the circuitry located on fixed and movable layers. As is explicitly stated in claim 1, the applicant claims a membrane switch circuit layout made up of two or more non-conductive membrane layers. Each membrane layer is printed on a top surface with a conductive circuit trace. The second membrane has thru-holes selectively cut there through in positions that correspond with areas where electrical connection is desired between the circuit trace on the second membrane and the circuit trace on the first membrane. The second membrane is

positioned over the first membrane and the thru-holes are filled to provide electrical connection between the circuit traces on the first and second membrane layers. The applicant asserts that it is clear that the claims are directed towards a membrane switch circuit layout comprising printed circuit paths on multiple layers (as is stated in claim 1: "A membrane switch circuit layout comprising two or more non-conductive membrane layers ... a conductive circuit trace being printed on the top surface of each membrane layer...") and it is unclear how the Examiner could be confused by the language of the claims as filed.

Claims 1-12 were rejected under 35 U.S.C. §102(b) as being anticipated by Maser (U.S. Patent No. 4,857,683). The Examiner referenced the first and second membranes 1 and 81 of Figures 10-14, indicating that the second membrane 81 has cut outs or through holes 84 in which the conductive traces 192, on the first membrane upper surface 2 are connected to the conductive traces 192b, 192 on the second membrane upper surface 82. (See column 9, lines 33 – column 10, line 64). The '683 patent fails to show, at least, pads for receiving conductive ink printed on the first membrane layer corresponding to the location of thru-holes in the second membrane layer, as specifically required in claim 1, as amended, of the present application. Accordingly, the applicant respectfully requests that the Examiner's rejection of the claims under 35 U.S.C. §102(b) as being anticipated by Maser (U.S. Patent No. 4,857,683) be withdrawn.

Claims 1, 13 and 14 were rejected under 35 U.S.C. 102(b) as being anticipated by O'Rourke (U.S. Patent No. 4,795,861). The Examiner specifically refers to the layers 1, 30, and 40 of Figures 2-4 and the through holes in the second and third membranes

30 and 40. The '861 patent fails to show, at least, a third conductive circuit trace printed on the top surface of a third membrane layer, third membrane layer having thru-holes to connect the third conductive circuit trace to a conductive circuit trace printed on the first or second membrane layer, as specifically required by new claim 27. Accordingly, the applicant respectfully requests that the Examiner's rejection of the claims 35 U.S.C. 102(b) as being anticipated by O'Rourke (U.S. Patent No. 4,795,861) be withdrawn.

Claims 13 and 14 were additionally rejected under 35 U.S.C. 103(a) as being unpatentable over Maser (U.S. Patent No. 4,857,683) considered with Larson et al. (U.S. Patent No. unknown). Specifically, Larson is used by the Examiner as teaching the thicknesses required by claims 13 and 14. No document was attached with the inventor Larson, nor was any listed in the Notice of References Cited. As a result, the applicant does not know to what reference the Examiner is referring and is not able to review that reference.

In light of the above, the applicant respectfully submits that each of claims 1-9, 11-12, 14, and 27-41 is in condition for allowance. As these are the only claims pending in the application, prompt issuance of a Notice of Allowance in this case is courteously solicited.

A request for a two month extension of time and a check covering the fees of the extension are filed herewith. If any additional fees are required to enter the present amendment, Applicant hereby authorizes the Office to charge our deposit account, Deposit Account No. 061910. If the Examiner feels that prosecution of the present application can be materially advanced by a telephonic interview, the undersigned would welcome a call at the number listed below.

Respectfully submitted,

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